Welinite \((\text{Mn}^{2+}, \text{Mg})_3(\text{W}^{6+}, \text{Mn}^{3+})_{1-x}(\text{SiO}_4)(\text{O}, \text{OH})_3\) (x = 1/3)

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Crystal Data: Hexagonal. Point Group: 3. As sections of crystals, to 2 cm.

Physical Properties: Cleavage: Poor to distinct on \{001\}. Tenacity: Brittle. Hardness = 4

\(D(\text{meas.}) = 4.47\quad D(\text{calc.}) = 4.41\)


Optical Class: Uniaxial (+); anomalously biaxial. Absorption: \(E > O\).

\(\omega = 1.864\quad \epsilon = 1.88\)

\(2V(\text{meas.}) = \text{Small.}\)

Cell Data: Space Group: \(P3\). \(a = 8.155(7)\quad c = 4.785(5)\quad Z = 2\)


1.782 (100), 3.102 (80), 2.332 (80), 4.07 (60), 1.5438 (60), 7.00 (50), 2.840 (40)

Chemistry:

\[
\begin{align*}
\text{SiO}_3 & \quad 15.7 \\
\text{Fe}_2\text{O}_3 & \quad 0.8 \\
\text{WO}_3 & \quad 21.7 \\
\text{Sb}_2\text{O}_5 & \quad 1.6 \\
\text{As}_2\text{O}_5 & \quad 0.0 \\
\text{V}_2\text{O}_5 & \quad 0.0 \\
\text{MnO} & \quad 55.5 \\
\text{MgO} & \quad 2.5 \\
\text{H}_2\text{O}^+ & \quad 2.9 \\
\text{Total} & \quad 100.7
\end{align*}
\]

(1) Långban, Sweden; by electron microprobe, \(\text{H}_2\text{O}\) by TGA; corresponds to \(\text{Mn}^{2+}\text{W}^{6+}\)

\(\text{Mg}_{0.24}\text{Sb}_{0.04}^{5+}\text{Fe}_{0.04}^{3+}\text{Si}_{1.00}\text{[O, (OH)]}_{0.75-0.7}\).

Occurrence: In small amounts, as fillings in fissures with other minerals cutting hausmannite ore (Långban, Sweden).

Association: Adelite, sarkinite, barite, cakite (Långban, Sweden).


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